**Table 1. Treatment of specific types of endocarditis.**

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| **Organism** | **Therapy** | **Duration of Therapy** | **Evidence Grade** |
| Native Valve Endocarditis Caused by Highly Penicillin-Susceptible viridans Group Streptococci and Streptococcus bovis Minimum inhibitory concentration <0.12 ug/mL | Aqueous crystalline penicillin G sodium (12-18 million U/24 h IV either continuously or in 4 or 6 equally divided doses )  OR  Ceftriaxone sodium (2g/24hIV/IMin1dose) | 4 weeks | IA |
|  | Aqueous crystalline penicillin G sodium 1 (2-18 million U/24 h IV either continuously or in 6 equally divided doses) OR Ceftriaxone (2g/24hIV/IM in1dose) Gentamicin is listed as part of the treatment, but no level of evidence is provided for this particular intervention | 2 weeks | IB |
|  | Vancomycin (unable to tolerate penicillin or ceftriaxone) | 4 weeks | IB |
| Therapy of Native Valve Endocarditis Caused by Strains of viridans Group Streptococci and Streptococcus bovis Relatively Resistant to Penicillin Minimum inhibitory concentration (MIC) >0.12 ug/mL–<0.5 ug/mL | Aqueous crystalline penicillin G sodium (24 million U/24 h IV either continuously or in 4-6 equally divided doses)  OR  Ceftriaxone(2g/24hIV/IMin1dose)  OR Vancomycin (for patients who are not able to tolerate penicillin or ceftriaxone; 30mg/kg per 24 h IV in 2 equally divided doses not to exceed 2 g/24 h, unless serum concentrations are inappropriately low) | 4 weeks | IB |
|  | PLUS  Gentamicin 3mg/kg per24hIV/IM in1dose | 2 weeks | No level of evidence |
| Patients with endocarditis caused by penicillin-resistant (MIC >0.5 ug/mL) strains should be treated with regimen recommended for enterococcal endocarditis. | | | |
| Therapy for Endocarditis Caused by Staphylococci in the Absence of Prosthetic Materials (MSSA) | Nafcillin OR oxacillin (12 g/24 h IV in 4-6 equally divided doses)  PLUS  Optional addition of gentamicin for 3-5 days (no level of recommendation provided for this practice) | 6 weeks | IA |
|  | For penicillin-allergic (nonanaphylactoid type patients): Cefazolin 6 g/24 h IV in 3 equally divided doses | 6 weeks | IB |
| Therapy for Endocarditis Caused by Staphylococci in the Absence of Prosthetic Materials (MRSA) | Vancomycin 30mg/kg per 24 h IV in 2 equally divided doses | 6 weeks | IB |
| Native valve staphylococcal endocarditis | Routine use of rifampin is not recommended for treatment of native valve staphylococcal endocarditis | | IIaC |
| Endocarditis in the Presence of Prosthetic Valves or Other Prosthetic Material Caused by Staphylococci | Coagulase-Negative Staphylococci Because of the potential for changes in the patterns of antibiotic susceptibility during therapy, organisms recovered from surgical specimens or blood from patients who have had a relapse should be retested for antibiotic susceptibility |  | IIaC |
| Enterococci | Enterococci should be routinely tested *in vitro* for susceptibility to penicillin and vancomycin (MIC determination) and for high-level resistance to gentamicin and streptomycin |  | IA |
| Therapy for Native Valve or Prosthetic Valve Enterococcal Endocarditis Caused by Strains Susceptible to Penicillin, Gentamicin, and Vancomycin | Ampicillin sodium (12 g/24 h IV in 6 equally divided doses) OR Aqueous crystalline penicillin G sodium (18-30 million U/24 h IV either continuously or in 6 equally divided doses  PLUS  Gentamicin sulfate (3 mg/kg per 24 h IV/IM in 3 equally divided 4-6 doses) (4-6 weeks) | 4-6 weeks | IA |
|  | Vancomycin (30 mg/kg per 24 h IV in 2 equally divided 6 doses)  PLUS  Gentamicin sulfate (3 mg/kg per 24 h IV/IM in 3 equally divided 4-6 doses) | 6 weeks | IB |
| Therapy for Native or Prosthetic Valve Enterococcal Endocarditis Caused by Strains Susceptible to Penicillin, Streptomycin, and Vancomycin and Resistant to Gentamicin | Ampicillin sodium (12 g/24 h IV in 6 equally divided doses)  OR  Aqueous crystalline penicillin G sodium (24 million U/24 h IV continuously or in 6 equally divided doses)  PLUS  Streptomycin sulfate (15 mg/kg per 24 h IV/IM in 2 equally divided doses) | 4-6 weeks | IA |
|  | Vancomycin (recommended only for patients unable to tolerate penicillin or ampicillin) (30 mg/kg per 24 h IV in 2 equally divided doses)  PLUS  Streptomycin sulfate (15 mg/kg per 24 h IV/IM in 2 equally divided doses) | 6 weeks | IB |
| Therapy for Native or Prosthetic Valve Enterococcal Endocarditis Caused by Strains Resistant to Penicillin and Susceptible to Aminoglycoside and Vancomycin | Beta-Lactamase–producing strain  Ampicillin-sulbactam(12 g/24 h IV in 4 equally divided doses)  PLUS  Gentamicin sulfate (3 mg/kg per 24 h IV/IM in 3 equally divided doses) | 6 weeks | IIaC |
|  | Beta-Lactamase-producing strain  Vancomycin:for patients unable to tolerate Ampicillin-sulbactam (30 mg/kg per 24 h IV in 2 equally divided doses)  PLUS  Gentamicin sulfate (3 mg/kg per 24 h IV/IM in 3 equally divided doses) | 6 weeks | IIaC |
|  | Intrinsic penicillin resistance  Vancomycin hydrochloride (30 mg/kg per 24 h IV in 2 equally divided doses)  PLUS  Gentamicin sulfate (3 mg/kg per 24 h IV/IM in 3 equally divided doses) | 6 weeks | IIaC |
| Therapy for Native or Prosthetic Valve Enterococcal Endocarditis Caused by Strains Resistant to Penicillin, Aminoglycoside, and Vancomycin | E. faecium  Linezolid(1200 mg/24 h IV/PO in 2 equally divided doses)  OR  Quinupristin-dalfopristin 22.5 mg/kg per 24 h IV in 3 equally divided doses | ≥ 8 weeks | IIaC |
|  | E. faecalis  Imipenem/cilastatin (2 g/24 h IV in 4 equally divided doses)  PLUS  Ampicillin sodium (12 g/24 h IV in 6 equally divided doses)  OR  Ceftriaxone sodium (4 g/24 h IV/IM in 2 equally divided doses)  PLUS  Ampicillin sodium (12 g/24 h IV in 6 equally divided doses) | ≥ 8 weeks | IIbC |
| Therapy for Both Native and Prosthetic Valve Endocarditis Caused by HACEK Microorganisms (Haemophilus parainfluenzae, H aphrophilus, Actinobacillus actinomycetemcomitans, Cardiobacterium hominis, Eikenella corrodens, and Kingella kingae) | Ceftriaxone sodium (2g/24hIV/IMin1dose) | 4 weeks | IB |
|  | Ampicillin-sulbactam (12 g/24 h IV in 4 equally divided doses) | 4 weeks | IIaB |
|  | Ciprofloxacin(1000mg/24h PO or 800mg/24hIV in 2 equally divided doses) | 4 weeks | IIbC |
| Enterobacteriaceae | Cardiac surgery in combination with prolonged courses of combined antibiotic therapy is a cornerstone of treatment for most patients with endocarditis caused by Gram-negative bacilli, particularly in the setting of left-sided involvement |  | IIaB |
| Enterobacteriaceae | Specific aminoglycoside used is a critical variable and cannot be totally predicted from MIC data alone because pharmacodynamic characteristics differ markedly in animal models of IE caused by Gram-negative aerobic bacilli. Thus, determinations of tube-dilution MBC often are necessary to guide therapy |  | IIbC |
| Class I: Conditions for which there is evidence, general agreement, or both that a given procedure or treatment is useful and effective  Class II: Conditions for which there is conflicting evidence, a divergence of opinion, or both about the usefulness/ efficacy of a procedure or treatment  Class IIa: Weight of evidence/opinion is in favor of usefulness/efficacy  Class IIb: Usefulness/efficacy is less well established by evidence/opinion  Class III: Conditions for which there is evidence, general agreement, or both that the procedure/treatment is not useful/effective and in some cases may be harmful  Level of Evidence A: Data derived from multiple randomized clinical trials  Level of Evidence B: Data derived from a single randomized trial or nonrandomized studies  Level of Evidence C: Consensus opinion of experts | | | |